



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Gwo S. Swei, Damien C. Nevoret and Patrick Yang  
Application No.: 10/688,833 Group: 1755  
Filed: October 17, 2003 Examiner: Marcheschi, Michael A.  
Confirmation No.: 9438  
For: ANTILOADING COMPOSITIONS AND METHODS OF  
SELECTING SAME

CERTIFICATE OF MAILING OR TRANSMISSION	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or is being facsimile transmitted to the United States Patent and Trademark Office on:	
Date 4.4.06	Signature Jane Morgan
Typed or printed name of person signing certificate JANE MORGAN	

DECLARATION OF WILLIAM C. RICE UNDER 37 C.F.R. 1.132

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, William C. Rice, Ph.D. of Medway, MA declare and state that:

1. I am currently employed by Saint-Gobain Abrasives, Inc., 9 Goddard Road, Northboro, MA 01532, where I serve as Research Associate. I am generally familiar with the subject matter described in U.S. Application No. 10/688,833 filed on October 17, 2003. This patent application was filed on behalf of Saint-Gobain Abrasives, Inc.

2. I have three years of experience in antiloading composition research for abrasive products. The results of my work are disclosed in several patent applications. Examples of the patent applications include U.S. Patent Application Numbers 11/342,242 and 11/342,329.

3. I have thoroughly studied the above-identified application and currently-pending claims of the application. I also have thoroughly studied the Office Action mailed from the U.S. Patent and Trademark Office on December 30, 2003 in the subject application and the references cited by the Examiner: U.S. 5,704,952 to Law, *et al* and U.S. 4,988,554 to Peterson, *et al*.

4. The claimed invention of the subject application provides an abrasive product that comprises an antiloading composition. The antiloading composition comprises a first organic compound and a second organic compound where each of the first and second organic compounds independently is represented by a formula:  $R-OSO_3^- M^+$ ,  $RCONH(CH_2)_3-N^+(CH_3)_2-CH_2-CO_2^-$ ,  $R-CONR'CH_2-CO_2^- M^+$ , or  $R-O(CO)CH_2-O-SO_3^- M^+$ , where R is C6-C18 linear alkyl; R' is C1-C4 linear alkyl; and  $M^+$  is an alkali metal ion.

5. Based upon my knowledge and experience, among the examples of antiloading compounds listed at column 30, line 27 through column 31, line 22 of U.S. 5,704,952 to Law, *et al.*, sodium octadecyl sulfate ( $CH_3(CH_2)_{17}-O-S(O)_2O^- Na^+$ ) is the only compound that meets the structural criteria of Section 4.

6. Based upon my knowledge and experience, not all alkyl sulfates meet the structural criteria of Section 4.

7. Based upon my knowledge and experience, 10%, or less, by weight of sodium lauryl sulfate in an antiloading composition is not sufficient to have any antiloading effect. Support for this assertion is presented below:

a. Antiloading effect of different antiloading compositions can be evaluated by accumulative grinding performance of abrasive products having the antiloading compositions, respectively, on the same type of substrates under the same grinding conditions, where the only difference between the abrasive products is the antiloading compositions applied thereon, respectively.

b. Enclosed Exhibit B shows cumulative grinding performance data of abrasive products having different amount of sodium lauryl sulfact ("SDS") as an antiloading agent in grinding P80-Acrylic Panels ("PMMA") under the same grinding conditions. For the test products, abrasive products having no antiloading composition were prepared by the same method, using the same types of abrasives and binders. The abrasive products were then coated with antiloading compositions that included 1% SDS, 10% SDS, 25% SDS and 50% SDS by weight, respectively ("1% SDS product," "10% SDS product," "25% SDS product" and "50% SDS product," respectively). In each of the applied antiloading compositions, the balance was filled with water and 1-methoxy-2-propanol, which is not an antiloading agent. As a reference, an abrasive product, made in the same way and using the same types of abrasives and binders as those for the test abrasive products, was coated with an antiloading composition that included 89.8% zinc stearate, 10% binder and 0.2% defoamer, by weight, was used ("standard product").

c. The cumulative grinding performance of each of the 1% SDS, 10% SDS, 25% SDS and 50% SDS products is compared with that of the standard product in Exhibit B. 1% SDS is, in effect, equivalent to having no SDS present in an antiloading composition. Support for this assertion can be found in Exhibit B showing that at times 8.0 seconds through 88 seconds, the cumulative cut of the 10% SDS product is lower than that of the 1% SDS product.

d. According to the data shown in Exhibit B, the cumulative grinding performance of each of the 1% SDS and 10% SDS products is much inferior to that of the standard product. For example, the 1% SDS and 10% SDS products show about 47%-50% performance compared with that of the standard product at 96 seconds. In contrast, the 25% SDS product and 50% SDS product show substantial increases in cumulative grinding performance as compared with the

standard product: at 96 seconds, 125% and 150% increases, respectively, over the standard product. Because all other factors that can affect the cumulative grinding performance of the test products and reference product are the same, the observed difference in their cumulative grinding performance is associated with the difference in their antiloading compositions, *i.e.*, their antiloading effect. Based on this fact and the data shown in Exhibit B, and based on my knowledge and experience, I conclude that 10%, or less, by weight of sodium lauryl sulfate in an antiloading composition is not sufficient to have any antiloading effect.

I hereby acknowledge that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

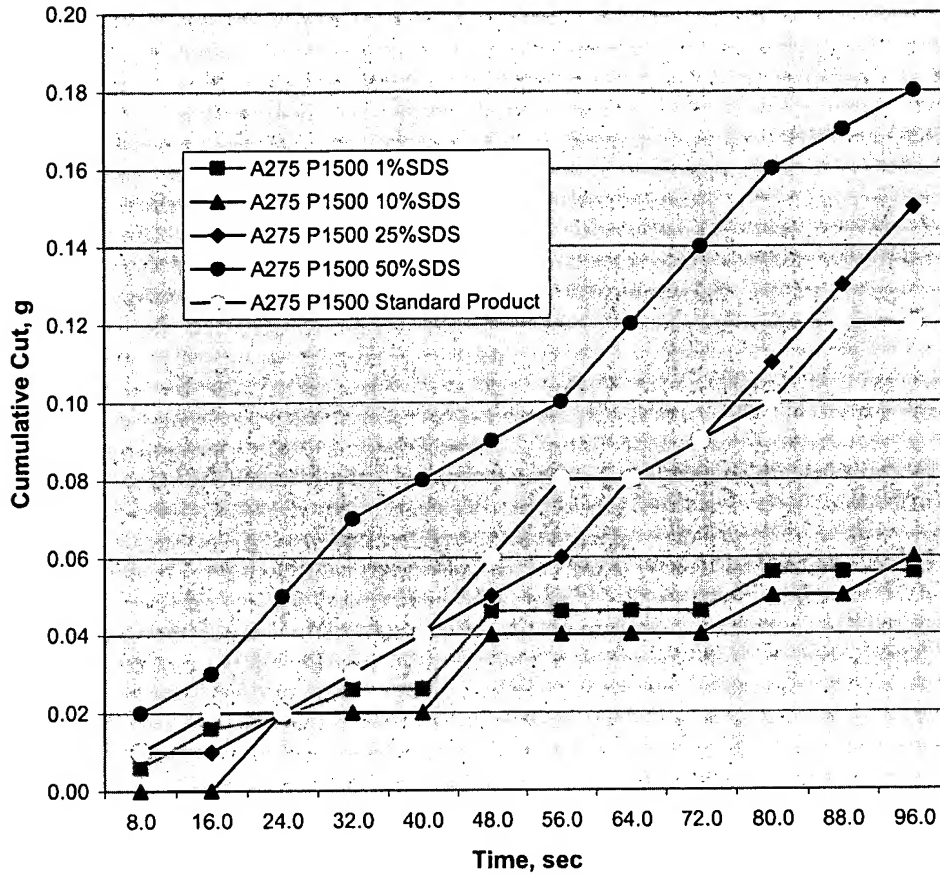
William C. Rice

William C. Rice

April 3, 2006

Date

**DA Test - Standard No-Fil Versus (SDS+NoFi) Mix**  
**Evaluation of effect of SDS as anti-loading product**



**EXHIBIT**

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